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LESSONS OF ALLIED INTEROPERABILITY: A PORTENT FOR THE FUTURE?

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Carlisle Barracks, Pennsylvania

LESSONS OF ALLIED INTEROPERABILITY: A PORTENT FOR THE FUTURE?

by

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FOREWORD

This memorandum considers the period of World War II for portents of value to the nation's present and future leadership concerned with allied interoperability. The authors assert that the lessons of World War II provide a matrix for analysis of command and control, logistics, operations, education, doctrine, and training within which can be ascertained interoperability components like "software" procedures, SOP's, and handbooks, as well as "hardware," weapons and equipment. They conclude that standardization of equipment, ammunition, doctrine, and signal procedures as a means for eliminating the problems of interoperability is a highly desirable goal.

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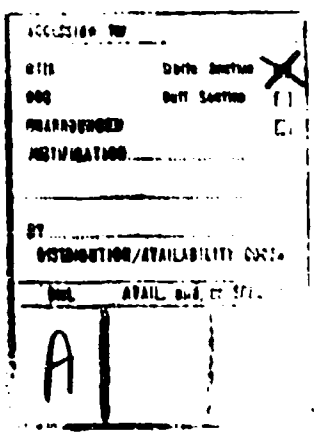

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LESSONS OF ALLIED INTEROPERABILITY: A PORTENT FOR THE FUTURE?

Every important conflict of the Twentieth century involving American participation has been an allied effort. Any similar conflict in the foreseeable future will undoubtedly follow this pattern. From the Boxer Rebellion in 1900 through Viet Nam, allied interoperability has been both a problem and a challenge for American military professionals. True, allied experiences date from the time of ancient Greece and Rome. Yet, one really need search no farther than the Second World War perhaps the greatest coalition war in history--for auguries or portents of value to the nation's civilian and military leadership faced with interoperability issues in the future.1

Today, the focus is upon Europe and NATO. Not surprisingly the most graphic and relevant experiences of allied interoperability in World War II emerged from this geographical area. While historians have concentrated upon studying the highest levels of coalition warfare, the functional, pragmatic issues of allied interoperability have suffered neglect. These issues derive less from the victorious sweep of Allied forces from the Channel into Germany in 1944-45, and more from the earlier campaigns in North Africa, Sicily, and Italy, as well as the Axis-Russian Armageddon in the east. The final drive to victory was the summation of allied interoperability lessons learned on earlier battlefields.

How should we define the elusive term "interoperability?" Semantics provide one of the fundamental subissues and problems within the subject. Approved DOD/NATO definitions such as "the ability of systems, units or forces to provide service and accept services from other systems, units or forces and to use the services so exchanged to enable them to operate effectively together" seem inadequate when viewed from the perspective of historical experience.[2] "Interoperability" must be stretched to encompass virtually every aspect of the overall experience of coalitions in military operations. Only in this fashion can the subtleties and innuendoes of the full spectrum of progress from national force to integrated force be appreciated by junior and senior leaders in the international system. The "lessons" of North Africa, Italy, Southern France, and Russia from World War II provide the matrix for analysis of General Environment, Command, Staff, and Education/Doctrine/Training. Within this matrix can be ascertained the components of interoperability, including personnel, "soft-ware" procedures, SOP's, and handbooks, as well as "hardware" weapons systems and equipment.

Following the allied debacle of 1939-40 (which showed how lack of prewar allied interoperability could quickly lose most of western Europe to a Nazi German empire), the Allied Tunisian campaign of 1942-43 provided a testing ground for a subsequent Anglo-American alliance in the Mediterranean and European theaters. Subsequent Allied operations in Italy reflected some application of the lessons learned in North Africa to ensure more effective, functional cooperation. But, time was available for the adjustment. The nature of operations favored conduct of an integrated allied force. With the exception of a few limited counteroffensives, the Germans fought a defensive war. Only the two pursuit phases from Rome to the Arno River, and from the Arno River to the Po valley, varied the pattern of the difficult engagements of the Italian campaign, which more closely resembled the "set piece" battles of World War I (including winter lulls) than the battles of maneuver seen as characteristic of other Allied-Axis campaigns of 1944-45.

For the Axis, however, this element of time was not available in similar degree. In North Africa and Italy, but more especially Russia and the eastern front, the Axis allies of Nazi Germany also learned the hard lesson that interoperability required large amounts of time and patience to achieve close training, coordination, planning, and assembly of necessary logistical support. These same "lessons" (which

Anglo-French leaders learned at such high cost at the start of World War II), were hammered home to the Axis from the Rhone to the Rhine, and the Don to the Elbe. Successful interoperability - the central ingredient of modern coalition warfare - was not magic.

Historically, the problems of interoperability have been solved when they have been solved at all primarily through trial and error during actual combat operations over an extended period of time. This trial and error proved always to be a costly process, in terms of men, material, and time. Such a cushion may be lacking in future wars. The problems of operating with allies require command and staff awareness of their existence, and detailed planning to meet them, as do other urgent military missions and requirements. Different national, political, and strategic objectives may, however, limit the level of interoperability that may be achieved in the future just as in the past.

World War II indicated that the demands of prolonged combat -especially defensive combat will cause an allied force to become progressively more integrated in its composition. The exact timetable of such integration and how it will occur defies prediction. Furthermore, there appears to be a stage in this integrative process when amalgamation of allied units/elements will begin to exercise a degrading influence on the offensive capability of the force as a whole. A case in point was mixing of inexperienced allied units on the scale attempted in the early part of the Tunisian campaign. In the face of a stronger enemy, the end result would most likely have been even more disastrous than that narrowly averted at Kasserine Pass.

The personality of commanders and staff officers is, together with planning for interoperability, the most important factor in the establishment of effective combined operations. Those who cannot, or will not, work harmoniously with allies must be ruthlessly moved out. Lieutenant General Dwight D. Eisenhower (Allied Commander in Chief) and General Sir Harold Alexander (British Commander in Chief Middle East) were an Anglo-American team, but subordinates like Major General Lloyd R. Fredendall, commanding U.S. II Corps, and General Sir Kenneth Anderson, commanding the British First Army, proved intractable with other allied elements in their predominantly national commands and were replaced before their presence destroyed interoperability. A spirit of mutual respect and cooperation must be instilled and maintained throughout the command. A parochial or nationalistic attitude on the part of a commander will soon be mirrored by his staff and subordinates.

The closer national elements of any allied force resemble one another in organization, doctrine, equipment, the less likely they are to experience major problems in interoperability. This element of "rationalization, standardization, and interoperability" was present in World War II because of the overwhelming presence of American materiel and weapons like the Sherman tank throughout the allied force. Language diversity by itself is not an insurmountable problem of interoperability. But commonality of allied understanding requires linguistic and military technical vocabulary not normally appreciated in a purely national force environment. Traditional liaison team approaches to resolve that issue may simply be insufficient in today's setting. This must be a prime consideration in future task organization.

Individual and unit inexperience militate against the rapid establishment of effective military cooperation. Commanders in World War II found such inexperience not only with respect to operating with allied formations, but within national units themselves. "New" units will be involved initially in the shakedown process of solving their own internal problems. Contacts with allies during this period often translate into perceived characteristics of each national component by an ally which, in turn, tend to become exaggerated, usually somewhat derogatory, and, therefore, constitute a bar to real understanding. British supply personnel in North Africa, for example, never overcame their disgust with the spendthrift style of attached American units with respect to POL.

COMMAND

To say that commanders must attempt to understand the political and military objectives of their allies has always been a fundamental tenet of the highest level of leadership in coalitions. Such an "axiom" of interoperability was present from the start of Supreme Allied Headquarters. Eisenhower told Field Marshall Hastings Ismay, British Chief of the Imperial General Staff in October 1943:

> I anticipate that as fighting develops in the new theater there will be many times that detachments of both the United States and British forces are definitely imperilled [Sic] But I have constantly endeavored to maintain in all my relationships with the British Government and Armed Services, with the American War Department, and with my staff and subordinate commanders, that we are undertaking a single, unified effort in pursuit of a common object stated by the two governments; and that for the attainment of this object our sole endeavor must be to use every resource and asset for the common good.[3]

Yet, principle at the top often falls apart in practice at the firing line.

Interoperability in command can profitably begin with clarity and simplicity of orders and directives. Such is not merely a principle, but a commandment. Combined operations which include complex schemes of maneuver, intricate fire support plans and close timing are, in general, fated to be less than successful. This is especially true of those situations in which one or more of the major allied components of the force is inexperienced.

Integration of forces may give the commander a capability he did not previously enjoy with solely national forces. Still, he may also acquire a liability. Only *personal* visits by commanders and their staffs will generally provide an adequate picture of his allies' capabilities, needs, assets. Constant assessment of such a personal nature will be absolutely necessary. Such visitation should establish a command atmosphere sponsoring "positive criticism." This will provide an opportunity for subordinate allied unit commanders and their staffs to offer constructive suggestions and vent their feelings. Liaison alone cannot suffice in this regard.

This is not to denegrate the value of liaison—the traditional approach to coordination in national sector, coalition warfare. Experience has shown that units trained and equipped for liaison, such as artillery units or corps troops, do a better job of working harmoniously with allies than units whose mission does not normally require or include liaison. The message for commanders here is that units *can* be trained to work with allies if such is made a part of their normal mission, functions, and combat organization. Liaison requirements beyond normal, standard exchanges are difficult to foresee, but the conduct of operations by an integrated allied force will inevitably exceed anticipated requirements.

Integration of combat units at the division level *can be* effectively accomplished, given adequate time for the concerned units to prepare for it. Units perform best under the commanders and staffs with which they have trained. It is certainly not desirable to integrate units of one national force into another on a piecemeal basis. Combat formations below the division level generally do not integrate well into another force although battalion-size combat support elements can be so integrated due to organization, equipment, and training. In any case, when placed under another formation, a longer period of time must be allowed so that more detailed preparations can be made to counter possible confusion arising from lack of mutual understanding.

Commanders must be conscious of the fact that formation of

"representative" combat units because of "political desirability" in a coalition may present great problems due to time, available equipment, stocks of clothing and expendable supplies, as well as force requirements. For example, in the Italian campaign rehabilitated Italian army units with the allies proved far more useful as logistical troops than as combat forces. Brazilian Expeditionary Forces in this same theater were successfully amalgamated in both roles. Of course, political clout at a postwar peace table was not a factor in the Brazilian case.

The prerogatives of commanders, where units may be involved in integrated operations, should be firmly established early by common agreement. Further refinement on the ground will undoubtedly occur, since conflicts of authority are a natural accompanyment of coalition warfare. Only in this fashion can inevitable criticism of allies—however unacceptable on the part of major commanders and staff officers—be circumvented to ensure a spirit of cooperation.

STAFF FUNCTIONS

The focal point for traditional allied interoperability has been with a commander's staff. By necessity staff officers have had to be as informed and politically sensitive as the commanders they supported. There is no reason to see any change in the future. Yet frequent personal liaison and information-gathering visits by staff officers at every level will be even more essential to understanding allied intentions, capabilities, and feelings. As at the command level itself, simplicity must be the key. Constant efforts must be made, in planning and in actual conduct of operations, to find ways to eliminate sources of confusion and misunderstanding, and staff officers play a central role in this facet of allied interoperability.

There can be no substitute for a staff officer possessing a firm grasp of allied organization, operational doctrine, and philosophy of war. The staffer must accord all units equitable treatment and exposure in an integrated force. He must recognize that a policy of association between combat, combat support, and combat service support units, when adopted early, will assist materially in reducing interoperability problems. Particularly sensitive will be information flow in an integrated allied force as opposed to a homogeneous national force. Such a situation may force creation of vertical liaison systems, and place additional requirements on communications monitoring elements.

Still, there can be no avoidance of the centrality of "liaison" as a primary staff mission in allied interoperability. The exchange of liaison officers or parties should not be viewed as the sole or complete solution. Depending upon duration of operations, size and composition of the total integrated force, size and composition of the staffs of the subordinate integrated elements, similarities/dissimilarities in language and administrative or logistical procedures, and the nationality of the unit commander—it may be necessary or desirable to institute some form of a combined command and staff arrangement. In addition, the lessons of the Italian campaign taught that once the integrated portion of an allied force reaches one-third to one-half the total strength of the force, its presence will begin to be felt in all functional areas. Normal liaison exchange, although still necessary, will no longer suffice alone. In Italy, four combined staff concepts resulted from such a phenomenon, including integrated, incremented, and mission, as well as the traditional liaison.

World War II liaison officers were usually selected more for convenience than by any criteria posed by their intended mission. The subsequent marginal performance was not always the fault of the individual. Dispatching headquarters frequently inhibited the liaison officers or missions by failing to provide adequate training, through briefing on each mission, and sufficient personnel and equipment for the assignment. Liaison officers often became mere messengers, not authorities on allies, and frequently lacked access to various headquarters staff sections.

A checklist for headquarters staffs involved in interoperability should include recognition of the following:

Counterintelligence problems are increased in an allied force. This is especially true in those cases in which the allied force contains elements representing several nations, and operations are being conducted within or adjacent to one or more of these nations.

Variations in organization, tactical doctrine and differences of equipment will likely lead not only to operational, but also to administrative and logistical problems.

If an allied unit is weak in certain combat, combat support or combat service support capabilities, then it is necessary to supply that deficiency from the resources of an ally, and the units so transferred should then come under the command of that allied unit.

The formation of "ad hoc" forces, i.e., forces formed from pieces of various units and from two or more allied forces, should be limited

to cases of transcendent necessity because of their disruptive effect on parent organizations, complexities in command and control, logistical problems, and the lengthy time required to sort out the units following the period of employment.

As far as possible divisions should be employed intact. When parts of a division are taken away for a specific task, they should be returned to the parent unit as soon as possible. If it is essential to break up divisional organization, it appears that nothing less than a brigade-sized force with adequate combat service support should be so detached.

When it is necessary to regroup allied forces already engaged in battle, the following must be considered.

(1) The time necessary for orders to reach subordinate formation and units.

(2) The condition of a formation to be attached is difficult to assess except by a personal visit by the gaining commander.

(3) Establishment of close liaison with the appropriate administrative and logistical staff to ensure proper support.

(4) Time for the establishment and coordination of communications.

(5) Time required for reconnaissance.

Combat support units (tank destroyer battalions, field artillery battalions/groups/brigades, separate tank battalions, etc.) can more readily and effectively be attached to allied formations than units organic to divisions. They will experience little loss in combat efficiency so long as they are employed in accordance with their own tactical and logistical doctrine. The same would also appear to be true of separate combat service support units.

A high degree of coordination in artillery (fire support) operations is both required and feasible, especially in counterbattery/mortar operations. Inferiority to opposing force artillery strength/capability makes this coordination even more imperative.

Great care must be exercised in hiding the boundaries between adjacent allied units and in providing for observed fire support along these boundaries.

Actually, the greatest problems facing allied staffs may well concern supply and logistics. Host nation agreements, national economies and accountability for shared materiel, as well as the functional arrangements for supply, will all prove troublesome. If the western allies and the Axis never really addressed host nation questions of the NATO variety, the Anglo-French-Belgian operations of 1939-40 did,

and the debacle of May and June 1940 could be attributed in part to lack of adequate provision beforehand. Lend-lease solved much of the accountability problem as the war proceeded, and with a world engaged in conflict, questions of national economics for smaller or minor participants in coalition were not the same as today.

Yet, in the theater itself, staff officers faced major considerations leading to valuable lessons for the morrow. Close control must be exercised over critical items of equipment and special units, for example, in order to ensure "fair distribution," availability, and maximum effective utilization. Combat Service Support must be prepared to support, within their capability, all allied units operating in their area of responsibility. Transportation coordination and movements control proved a major logistical headache in North Africa and Italy, requiring early planning and constant supervision to ensure success. Ultimately, the problem of supply in any allied force will be difficult. The more varied the force composition in nationalities and equipment, the more complicated will be the problem, especially dietary requirements.

The most graphic illustration of staff difficulties with allied interoperability emerges from the Italian supply situation—a true opera bouffa of World War II. US Quartermaster historians declared after the fact:

> Supply procedures for the Italian Armed Forces were published on 23 November [1943]. Italian units were divided into three categories: BR-ITI, Italian units under British command; US-ITI, Italian units under United States command; and ITI-ITI, Italian units controlled by the Italian War Ministry. The Fifth Army was responsible for the supply, maintenance, and evacuation of all US-ITI's in the Army area regardless of assignment or attachment and for the supply, maintenance, and evacuation of all ITI-ITI's operating with the Fifth Army. It shared its responsibility for ITI-ITI's with the British. the supply of medical equipment and fuel was a Fifth Army responsibility; and the supply of clothing was a joint responsibility. The US-ITI's under Fifth Army command were controlled and administered by the 210th Italian Infantry Division, which was attached to Fifth Army special troops.[4]

EDUCATION/DOCTRINE/TRAINING

Allied interoperability demands early attention to education, training, and clarification of doctrine. Logically it should begin in peacetime, or at least prior to embarkation upon large-scale operations.

By tradition it has not, with the interwar period between the world wars as a striking example of inattention to functional implications of interoperability: Anglo-French allies largely wasted nine months of the "phoney war" before the Blitzkrieg of 1940. Even in America, the tone was set by Eisenhower's mentor, Major General Fox Conner, when he told a US Army War College audience in 1939:

> Dealing with the enemy is a simple and straightforward matter when contrasted with securing close cooperation with an ally. By the same token, no small part of our War College studies should be devoted to an endeavor to foresee exactly what to expect and how to reduce a friction should we have Allies, which may God forbid, in the next war.[5]

Given the atmosphere of the times both in Europe and America, Conner's prejudice (reflected in his final phrase) undoubtedly overshadowed his main point that US military education needed to give more attention in peacetime to allied interoperability. Today this same educational system has no evident program of progressive instruction on such topics. All of this imposes added training requirements for operational units and headquarters staffs for American forces stationed abroad. In effect, it also fosters a bifurcated military force - a home-station institution traditionally national in focus, with overseas garrisons by necessity oriented to service as an integrated allied force.

Current US service doctrine inadequately identifies or makes provision for problems associated with interoperability. Combined training exercises, regardless of the size of units involved, have always been vital to creating a spirit of cooperation and increasing the awareness of all personnel that allies have peculiar needs and mind-sets. Yet the absence of any *underlining* of interoperability in national service doctrine mitigates against achievement of such a goal in some hour of need. It has been so in the past and continues to suggest itself for the future.

Based on past experience, what should be sought through escalated interoperability training? Exercises involving integrated units should be structured to place maximum strain in all parts of the force in all functional areas. Failure to do this may conceal major problems of interoperability which cannot be corrected or only at great cost once the battle is joined. This is particularly true of logistics. Differences in allied organization, doctrine, language and terminology will continue to pose problems, and emphasize the need for trained liaison officers and an allied educational program. These problems can be well addressed by

discernment during training rather than amazement when they occur during wartime.

A unit which is to act as part of an integrated allied force should train with the others, if possible, and receive extensive instruction, not only on the organization and staff methods of their allies, but also on the organization and general principles of their tactical employment. Only in this way can the debilitating effect which differences in language, vocabulary, doctrine, and equipment have on allied combat effectiveness be overcome, or at least reduced.

Training for allied ground-air cooperation is also essential. The quick and accurate identification of allied troops/equipment/ aircraft and the coordination of air defense are serious joint/combined problems of long standing which defy easy solutions. Any solution, however, must incorporate within it an intensive training program for both air crews and ground combat personnel. Electro-mechanical devices alone will not solve the problems.

Standardization of equipment, ammunition, doctrine, and signal procedures, as a major means for eliminating the problems of interoperability, is a highly desirable goal. The experience of coalition warfare would indicate, however, that it is a goal which will never be attained. This fact of life, therefore, causes heavy responsibility to be placed upon the education/training base of a military institution like the US Army.

However, recent steps taken by the United States indicate a major effort to eliminate S/I problems. Increased standardization and interoperability of weapons and military equipment within NATO is now US Government policy. Section 802 of Public Law 94-361, enacted in 1976, states:

> It is the policy of the United States that equipment for use of personnel of the Armed Forces of the United States stationed in Europe under the terms of the North Atlantic Treaty should be standardized or at least interoperable with equipment of other members of the North Atlantic Treaty Organization.

The law specifically directs the Secretary of Defense to initiate and carry out procurement procedures in pursuit of that policy and authorizes him to waive "Buy American" price differentials in procuring equipment manufactured outside the United States.

In March 1977, the Defense Department published a comprehensive directive[6] implementing departmental policy on NATO standardization/interoperability. Subsequently each of the Military

Departments published its own implementing instructions. The directive stipulates, inter alia that DOD components will: seek NATO agreement on military operational needs, new weapon system requirements, and schedules for new weapons development and production, based on agreed NATO doctrine and operational concepts; employ mutually beneficial licensing agreements with NATO allies to achieve standardization or facilitate interoperability; consider NATO allies' systems, system derivatives, subsystems and components early in the development cycle; and, pursue a mutually cooperative and beneficial policy regarding exchange of technological information with NATO partners.

A strong system for exchanging experiences among allies should be established and cultivated at all echelons. In the final analysis, the fundamental "lesson" or "moral" from past experiences in World War II is plan, train, organize for allied interoperability *-or have it anyway!*

ENDNOTES

1. This paper is based upon two studies conducted by the authors in 1977 for Commanding General, US Army Europe, to be published as *Interoperability of Allied Forces*, with full documentation for consulted sources.

2. US Department of Defense, *Rationalization/Standardization Within NATO*, p. 89.

3. Allied Force Headquarters, G-3 (MTOA), *History of Allied Force Headquarters*, Part One, p. 9.

4. Endora Ramsay Richardson and Sherman Allan, *Quartermaster Supply in the Fifth Army in World War II*, p. 56.

5. Fox Conner, *The Allied High Command and Allied Unit of Direction*, p. 1.

6. Department of Defense Directive Number 2010.6, March 11, 1977, Subject: Standardization and Interoperability of Weapon Systems and Equipment Within the North Atlantic Treaty Organization (NATO).

BIBLIOGRAPHY

Allied Forces, Fifteenth Army Group, Headquarters G-3. *A Military Encyclopedia, Based on Operation in the Italian Campaigns 1943-1945*. 1945.

Allied Forces, Mediterranean Theater. *History of Allied Forces/and Headquarters NATOUSA*. April 2, 1945.

Allied Forces, Mediterranean Theater. British Historical Section Central Mediterranean. *Operations of British, Indian and Dominion Forces in Italy, 3 September 1943 to 2 May 1945*. n.p., n.d.

Ball, Edmund F. *Staff Officer With the Fifth Army, Sicily, Salerno, and Anzio*. New York: Exposition Press, 1958.

Bolleau, D. W., Compiler. *Supplies and Transport* [The Second World War 1939-1945 Army] London: The War Office, 1954.

Bond, Brian, Ed. *Chief of Staff. The Diaries of Lieutenant General Sir Henry Pownall* Hamden, Connecticut: Archon, 1973.

Clarke, F. A. S. "'Q' in Northwest Africa," *The Royal Armoured Corps Journal*, Vol IV, January 1950, pp. 42-47.

Conner, Fox. *The Allied High Command and Allied Unit of Direction*. Washington: US Army War College, 1939.

Devers, Jacob L. "Major Problems Confronting A Theater Commander in Combined Operations," *Military Review*, October 27, 1947, pp. 3-15.

Ellis, L. F. *The War in France and Flanders, 1939 1940* [History of the Second World War: United Kingdom, Military Series.] London: Her Majesty's Stationery Office, 1953.

Howe, George F. *Northwest Africa: Seizing the Initiative in the West* [US Army in World War II.] Washington: Department of the Army, 1951.

Juin, Marechal. *Memoires: Algier, Tunis, Rome*. Paris: Librarie Artheme Fayard, 1959.

Karslake, Henry. "South of the Somme, May-June 1940," *The Army Quarterly and Defense Journal*, Vol 102, January 1972, pp. 221-232.

Little, Wendell F. "Functions and Operations of G-4 Division, North African Theater of Operations," *Military Review*, Vol 30, December 1950, pp. 51-62.

McNamara, Andrew T. *Quartermaster Activities of II Corps Thru Algeria, Tunisia, and Sicily and First Army Through Europe*. Fort Lee: Quartermaster School, 1955.

de Moraes, Marshal J. B. Mascarenhas. *The Brazilian Expeditionary Force By Its Commander*. Washington: US Government Printing Office, 1966.

Playfair, I. S. O. *The Mediterranean and Middle East: The Destruction of the Axis Forces in Africa* [History of the Second World War, United Kingdom military series.] London: Her Majesty's Stationery Office, 1966.

Richardson, Endora R. and Allen, Sherman. *Quartermaster Supply in the European Theater of Operations in World War II*. Camp Lee: Quartermaster School, 1947.

Roluti, Francesco. "The Italian Army and The War in Russia," *Rivista Aeronautica*, December 1947.

Smith, W. Bedell. "Problems at an Integrated Headquarters," *Journal of Royal United Service Institution*, Vol. 90, November 1945, pp. 455-462.

Truscott, L. K. *Command Missions. A Personal Story*. New York: Dutton, 1954.

Vigneras, Marcel. *Rearming the French.* [US Army in World War II.] Washington: Department of the Army, 1957.

United Kingdom, War Office. Office, Chief of Imperial General Staff. *Notes From Theaters of War No. 16: North Africa, November 1942-May 1943.* London: War Office, 1943.

US Army, European Theater. G-3 Section. *Handbook on the British Army With Supplements in The Royal Air Force and Civilian Defense Organizations, TM 30-140.* Washington: US Government Printing Office, 1943.

US Army, European Theater. G-3 Section. *Notes on British Forces.* n.p., August 1943.

US Army, Mediterranean Theater of Operations, Supply (G-4) Division. *Logistical History of NATOUSA-MTOUSA.* Naples: G. Montanino, 1945.

US Department of Defense Directive Number 2010.6, March 1, 1977, Subject: Standardization and Interoperability of Weapons Systems and Equipment Within the North Atlantic Treaty Organization (NATO).

Ziemke, Earl F. *The German Northern Theater of Operations 1940-1945.* Washington: US Government Printing Office, 1959.

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20 ABSTRACT (Continue on reverse side if necessary and identify by block number)

Every important conflict of the twentieth century involving the United States has been an allied effort. Any similar conflict in the foreseeable future will undoubtedly follow this pattern. While allied experiences date from the time of ancient Greece and Rome, one need search no farther than World War II for portents of value to the nation's present and future leadership concerned with allied interoperability.

Today, the focus is upon Europe and NATO. The most graphic and relevant

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experiences of allied interoperability in World War II emerged from this same geographical area. Historians have concentrated upon the highest levels of allied coalition warfare, neglecting functional, pragmatic issues at the operational level. The campaigns of North Africa, Sicily, Italy, and Russia provide case studies in the problems and challenges of allied interoperability on the battlefield.

Standard, accepted Department of Defense/NATO definitions of "interoperability" remain inadequate. The term must encompass virtually every aspect of military operations so as to incorporate the subtleties and innuendoes inherrent in any integrated force. The lessons of World War II in Europe provide a matrix for analysis of command and control, logistics, operations, education, training, and doctrine within which can be ascertained interoperability components like "software" procedures, SOPs, and handbooks, as well as "hardware" of weapons and equipment.

Historically, interoperability problems have been solved - if at all - through trial and error during actual combat over an extended period of time. Challenges have involved not merely linguistic differences, but different technical terminology and phraseology; not simply separate national aims, but differences in military doctrine. Command and control variables have exceeded merely differences of organization to embrace personalities and philosophical differences. Traditional devices to expedite interoperability such as liaison missions and teams have not proven sufficient to endure the strains in alliances, particularly at crucial points in the battle. Various staff devices have been instituted to overcome size and numbers of alliance participants, and the logistic immensities of modern warfare. The inevitable phenomenon of modern allied interoperability - integration of units due to exigencies of combat crises - has defied traditional determination to preserve national force sectors.

Approaches to allied interoperability prior to the onset of hostilities have been weak and largely confined to top echelons. The inevitable result in combat has been near disaster such as France in 1940 and Kasserine Pass in 1943. Education, doctrinal instruction, and rigorous training can overcome certain pitfalls within national force and NATO today. Traditional neglect of allied interoperability in peacetime education/training of military institutions can no longer obtain given the lessons of the past. While standardization of equipment, ammunition, doctrine, communication etc. remains a highly desirable goal in peacetime alliances like NATO, the goal will always seem elusive. Alternative and supplemental devices must be instituted and implemented.

The fundamental "lesson" or "moral" emerging from World War II experience with value for the future is simply: plan, train, organize for allied interoperability - or have it anyway!

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